



# Riverside Ag Park Update

## City Council Meeting

### City of Riverside

March 15, 2016

Barbara Lee

Director



Department of Toxic Substances Control



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# Introduction

- Overview & History
- Riverside Ag Park On-site Re-evaluation
- Soil & Groundwater Sampling
- Phase 3 Cleanup & Next Steps
- Riverside Ag Park Off-Site Evaluation
- Lessons Learned & Future Work
- Questions

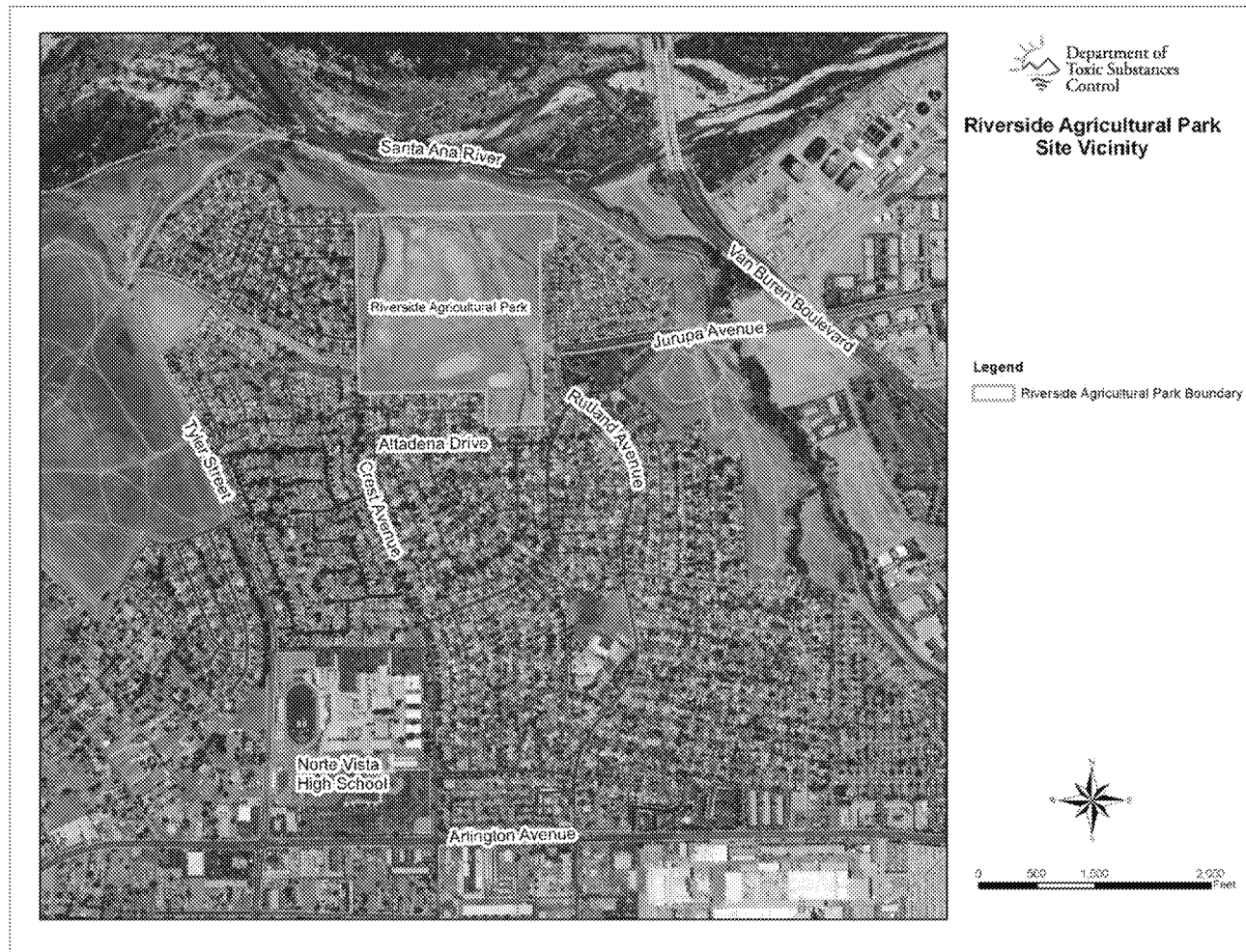


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# Riverside Agricultural Park



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# Before Phase I & 2 Cleanup



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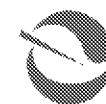
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# After Phase I & 2 Cleanup



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# March 2015 –Meeting with Riverside Ag Park Community



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# **ON-SITE RE-EVALUATION**

# On-Site Re-Evaluation

- Collaborated with Water Board and AQMD
- Requested further review by US Army Corps of Engineers
- Requested EPA support and review
- Review included:
  - Detailed historical on-site activities
  - Evaluation of removal process of on-site sewer line
  - Analysis of records of offsite disposal of soil
  - Re-evaluation of analytical data for PCBs, metals, VOCs, SVOCs, Pesticides, Perchlorate and Dioxins/Furans
  - Collaborative review of air monitoring logs and data with AQMD
  - Soil and groundwater sampling for PCBs, metals and dioxin/furans
  - Analysis of PCB congeners in select samples
  - Re-evaluation of health risk using latest data

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# Key Findings – Water Quality

- The Santa Ana Regional Water Quality Control Board concluded:
  - Sampling of ground water onsite and offsite, and Santa Ana River streambed and sediment showed no impact to groundwater or sediment
  - Investigation of reports of illegal disposal of materials from the site showed complaints were unfounded
- Groundwater testing begun in 2015 indicates no impact to water resources



# Key Findings – Air Quality

- The South Coast Air Quality Management District concluded:
  - Cleanup activities at the site were not subject to AQMD Rule 1150
  - AQMD Rule 403 requires fugitive dust, as demonstrated by upwind and downwind monitoring, not exceed 50 ug/m<sup>3</sup>
  - Review of upwind/downwind data from 131 days found 75 readings where the difference was greater than 50 ug/m<sup>3</sup> but only 6 readings on 5 separate days where the concentration was greater downwind than upwind *(updated 3/17/16 to correct earlier version)*
  - The readings were not simultaneous so there were no violations
- Between July 23, 2013 and December 12, 2013, a total of 647,619 gallons of water was applied for dust suppression at the site
- Daily downwind air samples were collected for the first two weeks of excavation, after which samples were collected weekly; samples were analyzed for the presence of PCBs, which were not present in any samples

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# Dust Suppression Activities



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# Key Findings – Former Military Use

- There are between 5,000 and 10,000 Formerly Used Defense Sites (FUDS) in the US, and nearly 669 in California
- Camp Anza is listed as a FUDS
- Ag Park is located within Camp Anza but not listed individually
- Reviews for possible Unexploded Ordnance in 1999 (INPR) and 2005 (ASR) by the Army Corps placed Camp Anza in the category of sites with “Negligible Explosive Safety Risk” requiring no further action
- At DTSC’s request, the Army Corps has agreed to expedite the preliminary FUDS evaluation of the Camp Anza site, to begin in April 2016, and conclude by September, 2017



# Other Key Points

- The Santa Ana RWQCB has been leading a review and removal of 31 underground fuel storage tanks throughout the former Camp Anza site
- Of the 31 underground tank projects, all except 2 have been closed
- The Santa Ana RWQCB is leading a groundwater cleanup for contamination associated with operations by B.F. Goodrich/ROHR Industries on a portion of the former Camp Anza site
- US EPA has initiated review of contamination associated with B.F. Goodrich/ROHR Industries operations





# **SOIL & GROUNDWATER SAMPLING - 2015**

# Sampling – September 2015



- 88 discrete soil samples
- Installation of 2 groundwater wells



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# EPA Collaboration



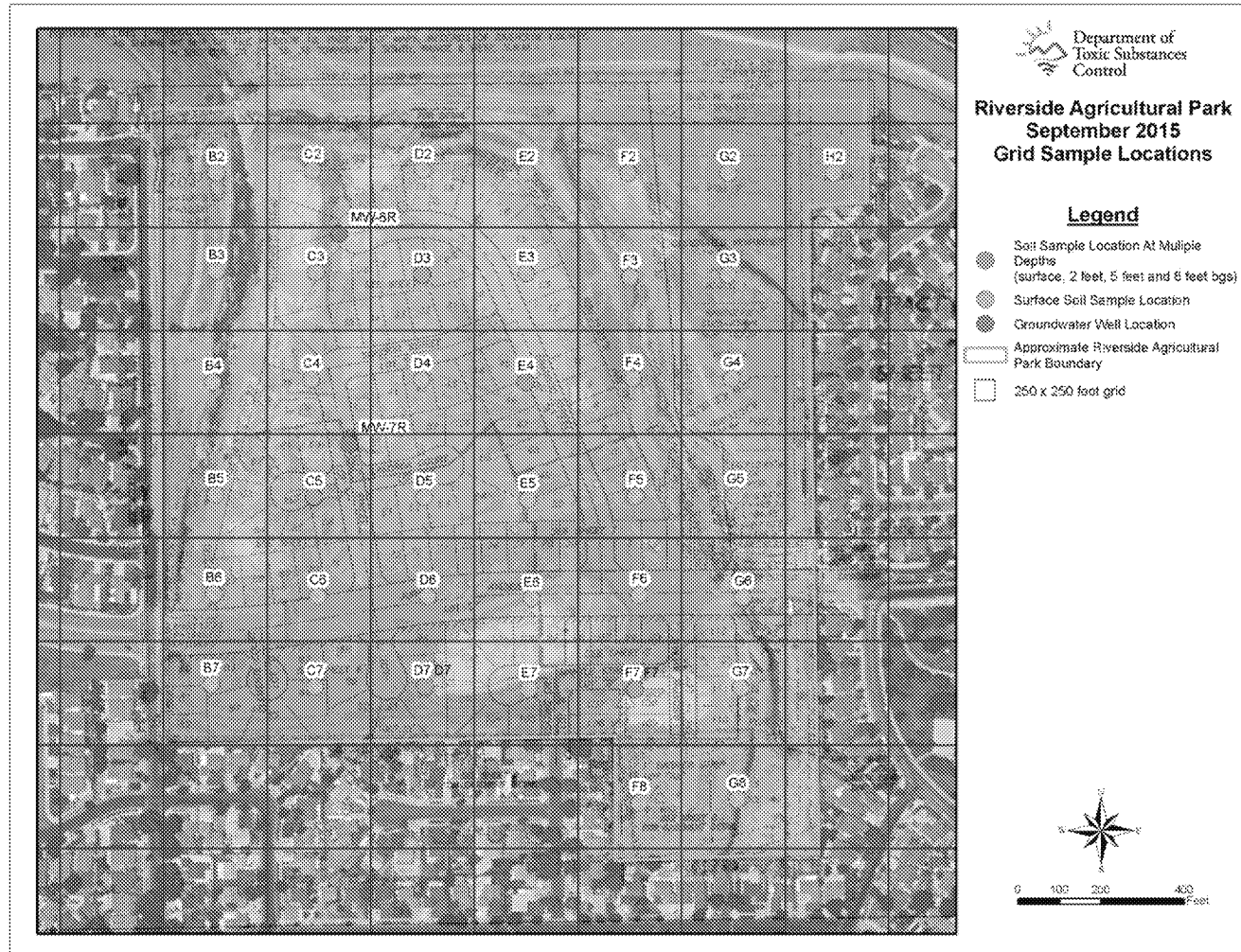
- Step by step collaboration
- Approval of sampling strategies
- Collection of co-located samples, analyzed at EPA lab
- Coordinated data analysis

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# September 2015 Sampling Locations



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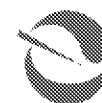


# 2015 Groundwater Sampling

- Two groundwater wells installed in September
- Samples taken in September, December, and March
- Samples analyzed for PCBs, metals, dioxins/furans and perchlorate
- Groundwater monitoring reports available on DTSC website in EnviroStor database

	PCBs	Metals	Dioxins/Furans	Perchlorate
September	ND	In range for region	Toxic Equivalency Units (TEQ) = 0.0	One well = 4.1 ug/L (Flagged) and one well = ND
December	ND	In range for region	Toxic Equivalency Units (TEQ) = 0.0	Both wells ND

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# PCB Soil Concentration Thresholds

- Non-detect: below analytical laboratory detection limits (0.07 mg/kg or less)
- Screening Level: at one in a million ( $10^{-6}$ ) cancer risk; 0.22 mg/kg was used as conservative goal for Phase 2 cleanup
- Health Protective Level: for residential setting and within agencies' acceptable risk range, 1 mg/kg
- Hazardous Waste: 50 mg/kg

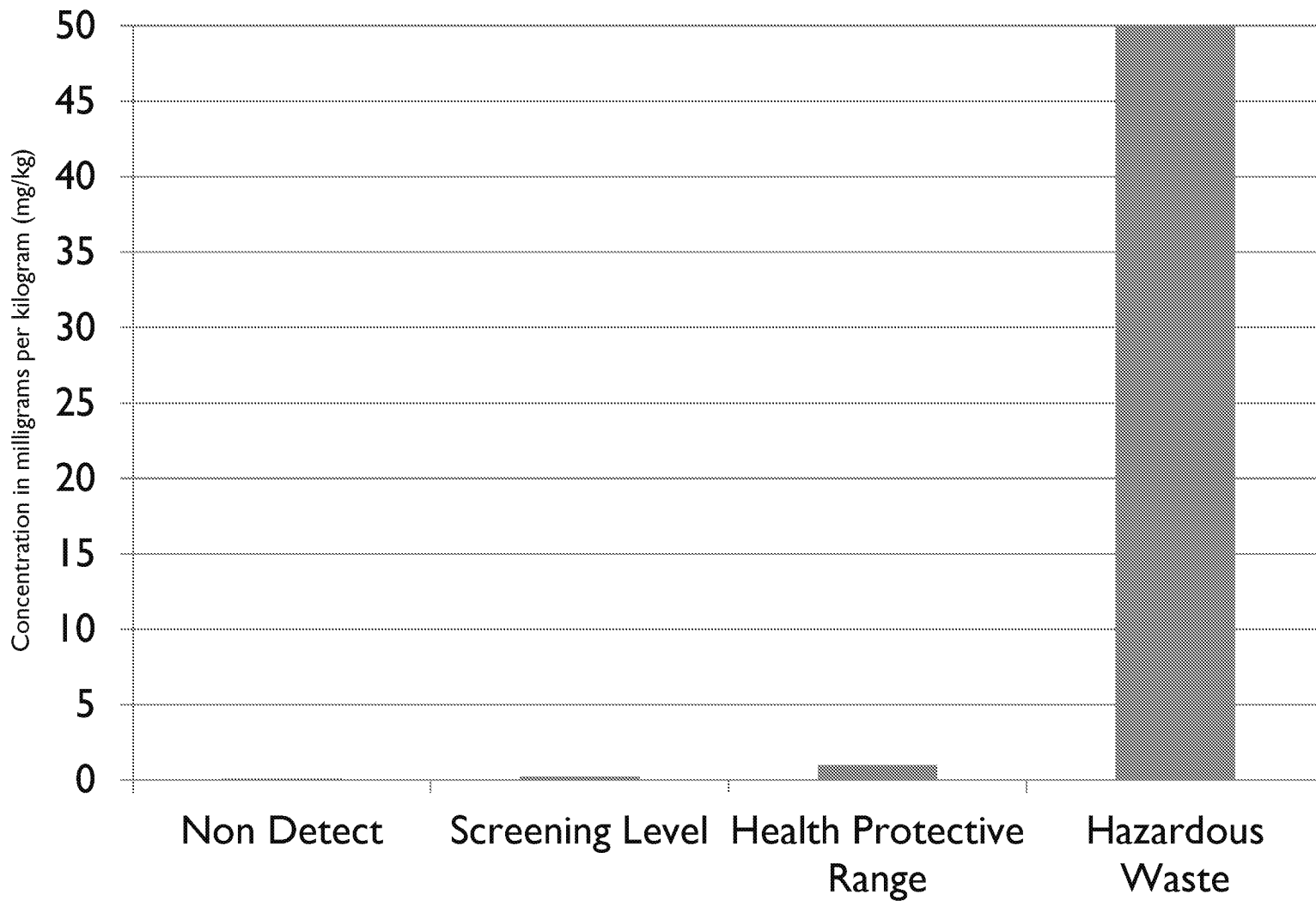


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## Comparing PCB Concentration Thresholds



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# September 2015 – Soil Sampling Results

PCB Level Measured	Non Detect	Below Screening Level	Below Health Level	Above Health Level	Hazardous Waste
		Less than 0.22 mg/kg	0.22 to 1.0 mg/kg	1.0 to 50.0 mg/kg	Above 50.0 mg/kg
Number of Samples	32	30	16	4	0

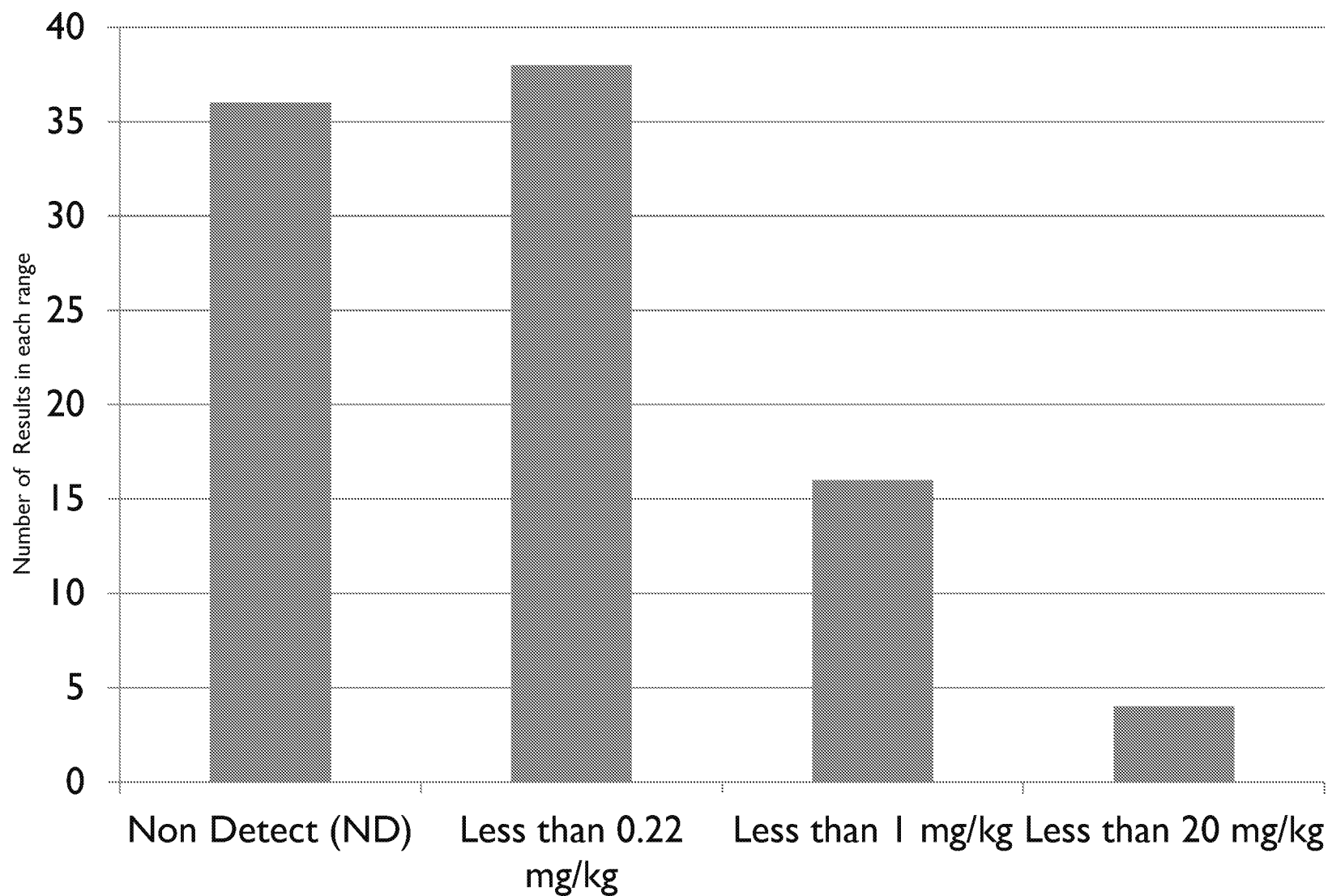
- Grid number B4 (in the west side of the site near this gully) has the highest concentration of 18 mg/kg; Grid number F3 has a concentration of 1.9 mg/kg in the surface sample.
- Results indicated previously undiscovered pockets of PCBs needing further investigation.

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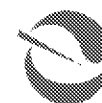


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## September 2015 Sample Result Ranges



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<sup>a</sup> Data were obtained from the authors' unpublished work.



# November 2015 – Soil Sampling Results

PCB Level Measured	Non Detect	Below Screening Level	Below Health Level	Above Health Level	Hazardous Waste
		Less than 0.22 mg/kg	0.22 to 1.0 mg/kg	1.0 to 50.0 mg/kg	Above 50.0 mg/kg
Number of Samples	43	44	54	31	4

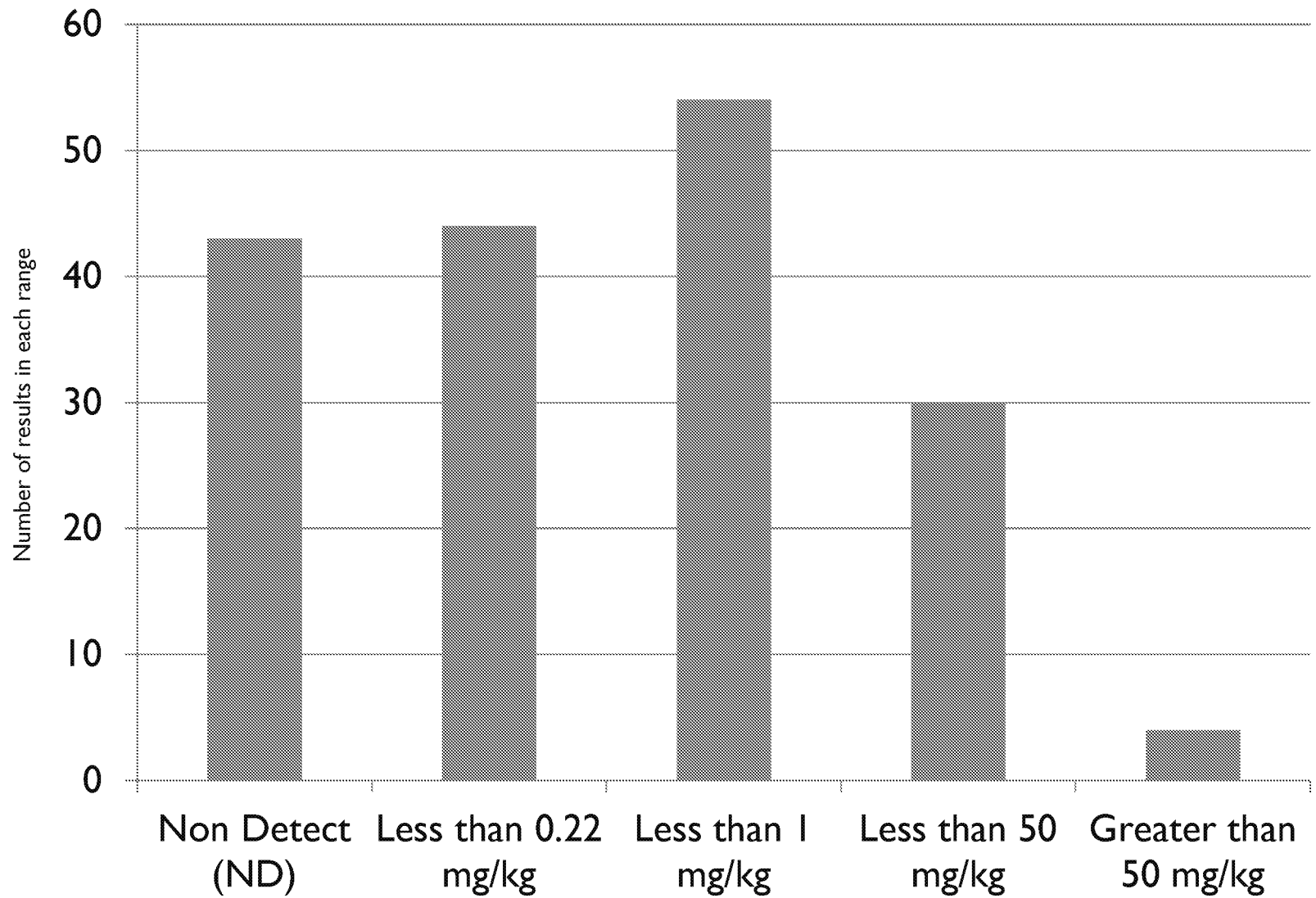
- 4 samples were above 50 mg/kg, all located in a single, isolated area (western gully) outside proposed development area.
- Further cleanup is required before development can continue.
- Samples split between EPA and the commercial laboratory showed consistent variance; EPA and DTSC analyzing causes
  - Both labs used EPA method 8082 (updated 3/17/16 to correct earlier version)

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# November 2015 Sample Result Ranges



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# **PHASE 3 CLEANUP**

# Phase 3 Cleanup Goals

- Remove all known PCBs above original cleanup goal of 0.22 mg/kg
- Cleanup set at a level to ensure that adults and children can safely live here for decades
- Since soil is made up of many differing types of materials, DTSC will conduct statistical analysis to ensure cleanup goal is met



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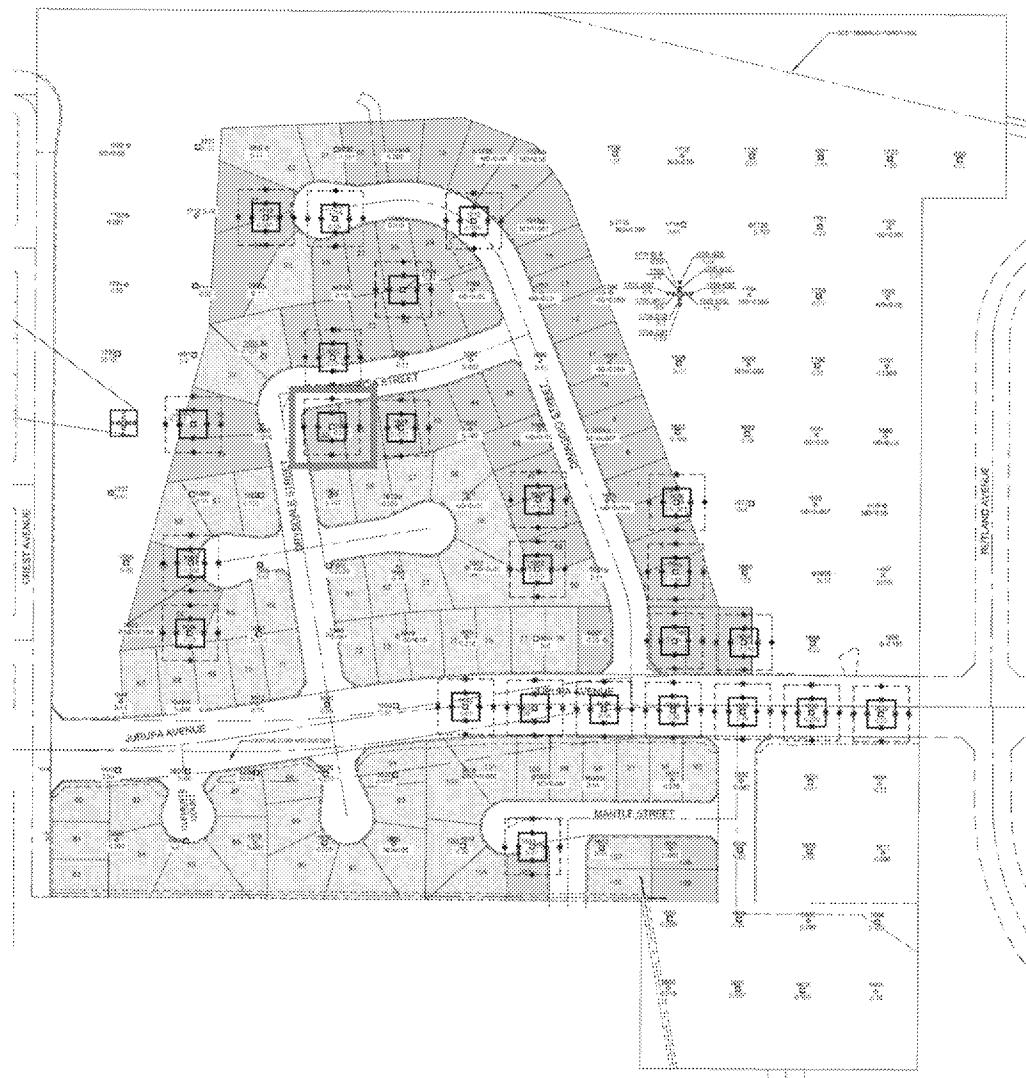
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# Upcoming Phase 3 Cleanup

- Cleanup designed around uses and lot types
  - “Cut” residential lots
  - “Fill” residential lots
  - Areas outside current residential lots
- After the site-wide cleanup, additional verification sampling of each residential lot, and additional cleanup, if needed



# Cleanup for Cut Lots

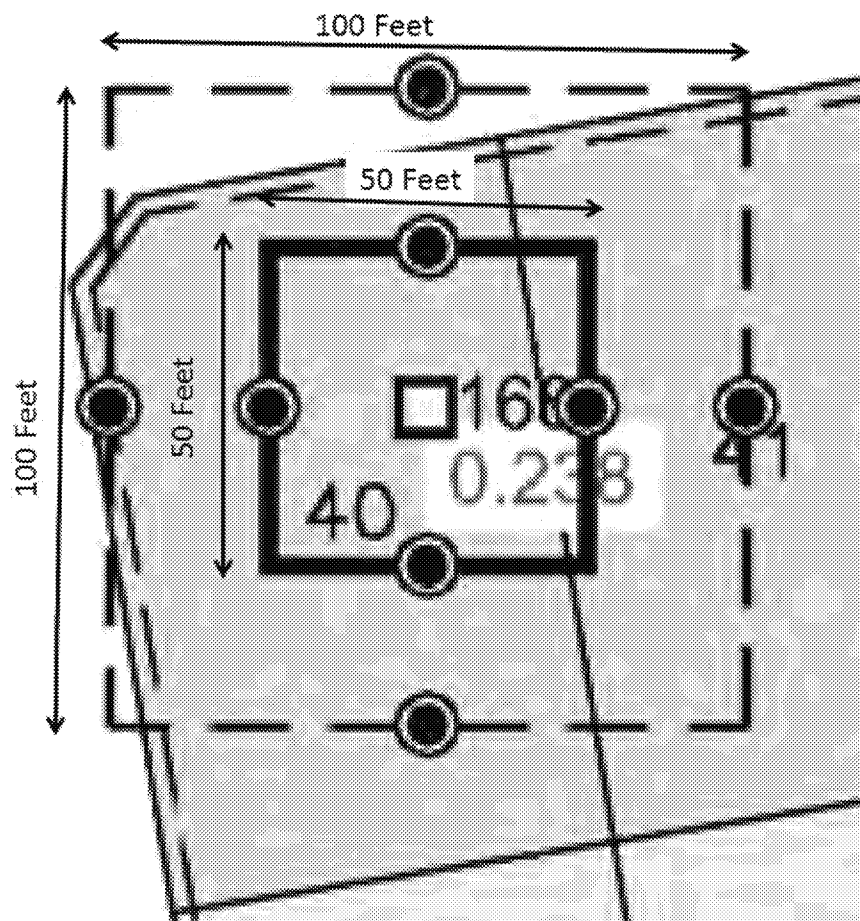


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# Detail for Cut Lot Cleanup



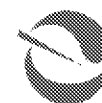
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# Cleanup Plan for Cut Lots

- Collect step-out soil samples in four directions at 25 feet and 50 feet from November 2016 sample locations exceeding PCB 0.22 mg/kg
- Remove soil around sample location exceeding cleanup goal to 1 foot deep and out to step-out sample limits (minimum 50 foot by 50 foot square excavation).
- Collect one bottom sample per 1,000 square feet with a minimum of three samples per removal area.
- If any results are above 0.22 mg/kg in any sample, continue step-out and deeper sampling until results are below cleanup goal (0.22 mg/kg).

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# Cleanup for Fill Lots



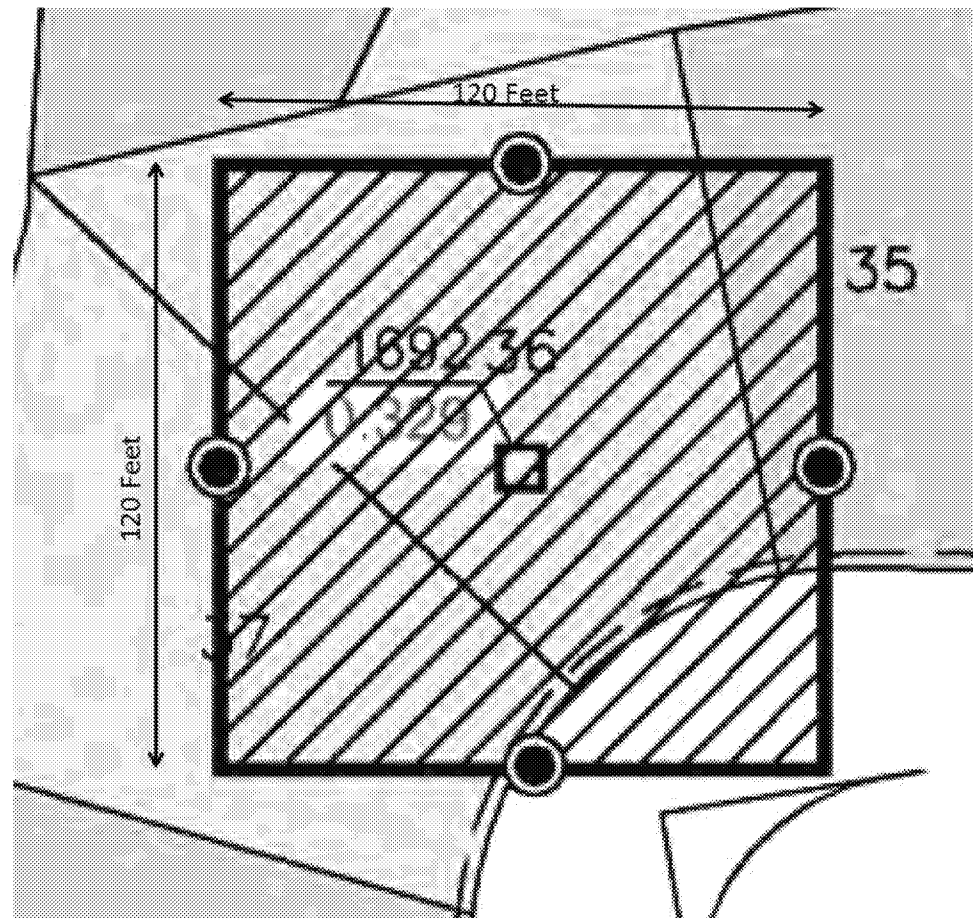
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# Detail for Fill Lot Cleanup



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# Cleanup Plan for Fill Lots

- Collect step-out soil samples in four directions at 60 feet from sample location with PCB exceeding 0.22 mg/kg
- Remove soil around sample location exceeding cleanup goal to 1 foot deep and out to step-out sample limits (minimum 120 foot by 120 foot square)
- Collect one bottom sample per 1,000 square feet with a minimum of three samples per removal area.
- Continue step-out sampling an additional 10 feet laterally and 1 foot deep until results are below cleanup goal.



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# Cleanup for Areas Outside Current Residential Lots



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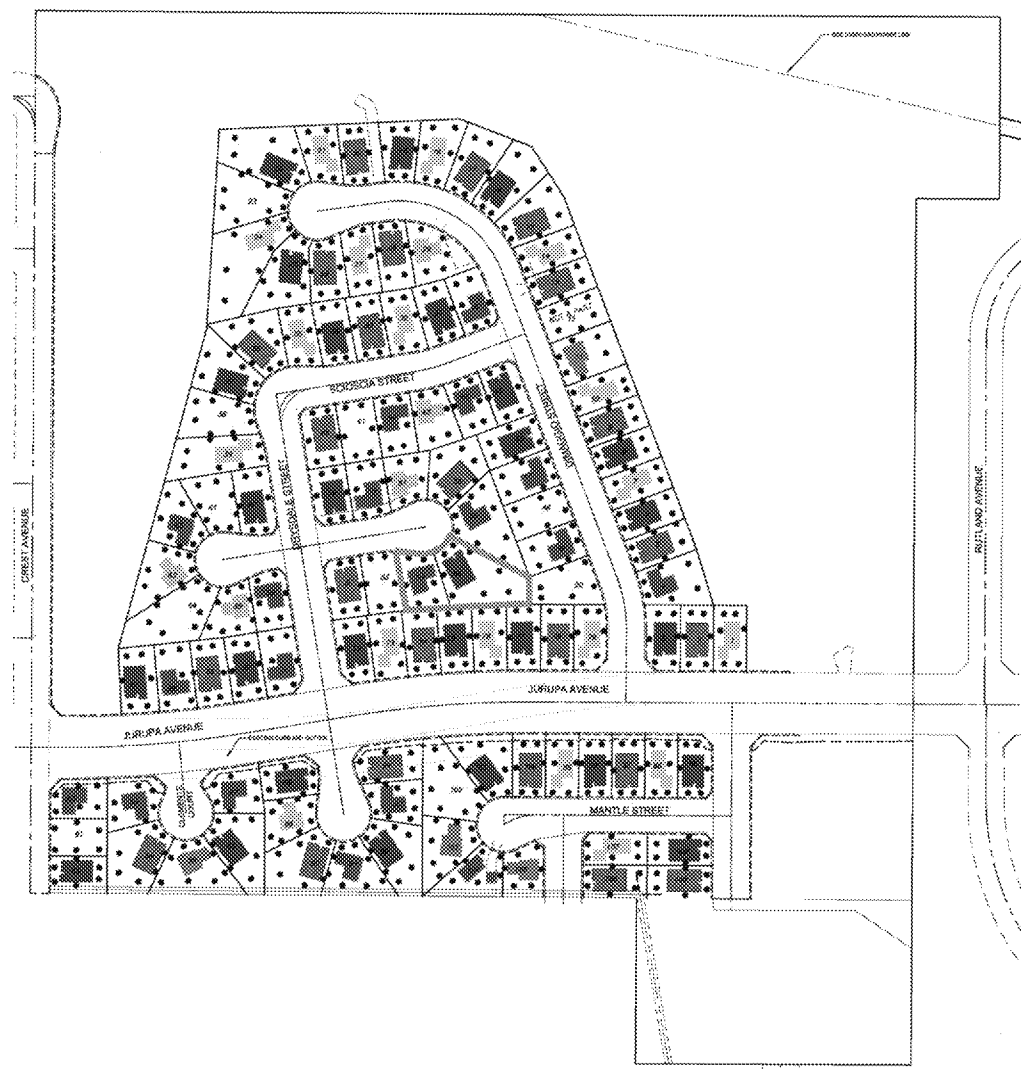
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# Cleanup Plan for Outside Areas

- Re-sample the outside areas on a 62.5 foot grid.
- If a historic data point is within 2 feet of the grid point and is below the cleanup goal then no sample required.
- Collect step-out soil samples in four directions at 25 and 50 feet from sample location exceeding PCB cleanup goal.
- Remove soil around sample location exceeding cleanup goal to 1 foot deep and out to step-out sample limits (minimum 50 foot by 50 foot square excavation).
- Collect one bottom sample per 1,000 square feet with a minimum of three samples per removal area.
- Continue step-out sampling an additional 10 feet laterally and 1 foot deep until results are below cleanup goal.



# Lot by Lot Confirmation Sampling After Cleanup



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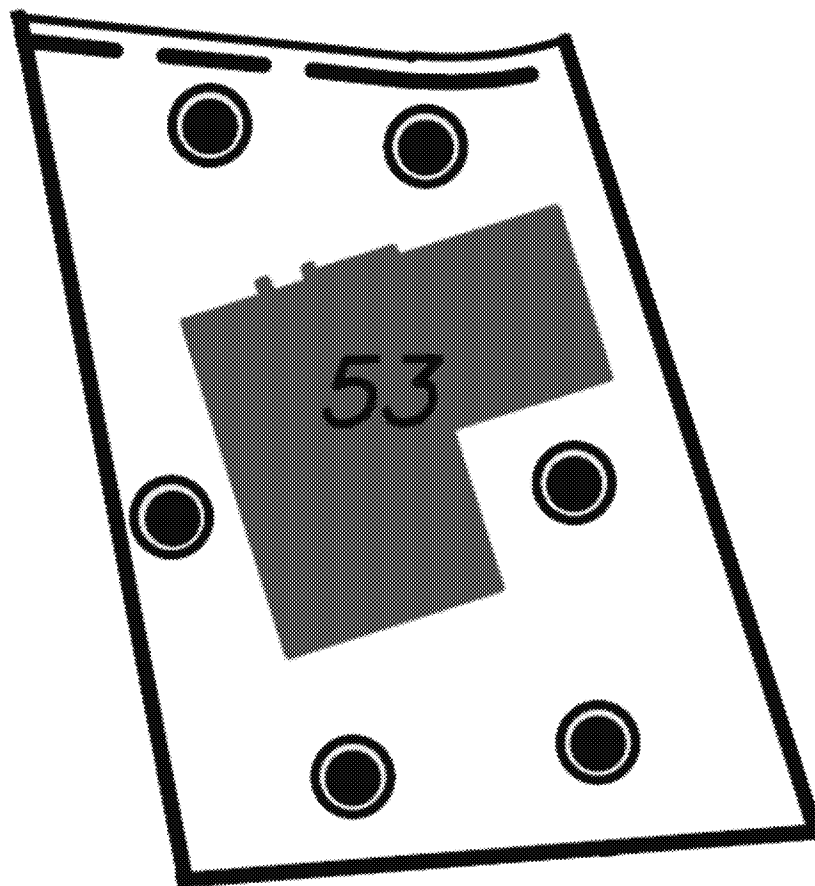
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# Confirmation Sampling Plan After Cleanup

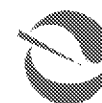
- After the cleanup of the entire site, additional confirmation sampling will be conducted for each residential lot
- For small lots, collect 6 samples per lot (2 front yard, 2 side yard, and 2 back yard)
- For large lots, collect 8 samples per lot (2 front yard, 2 side yard, and 4 back yard).
- For cut lots, collect only surface samples (0-6 inches).
- For fill lots, collect surface samples, two foot deep samples, and for fill 8 feet or deeper, 50% of the depth of the fill (not including concrete fill material).
- For all lots, if any result exceeds the cleanup goal, remove soil in the area 2 feet deep and laterally to adjacent sample location meeting the cleanup goal, then resample including bottom samples.
- Continue removing and sampling until results are below cleanup goal.



# Confirmation Sampling of Small Lot

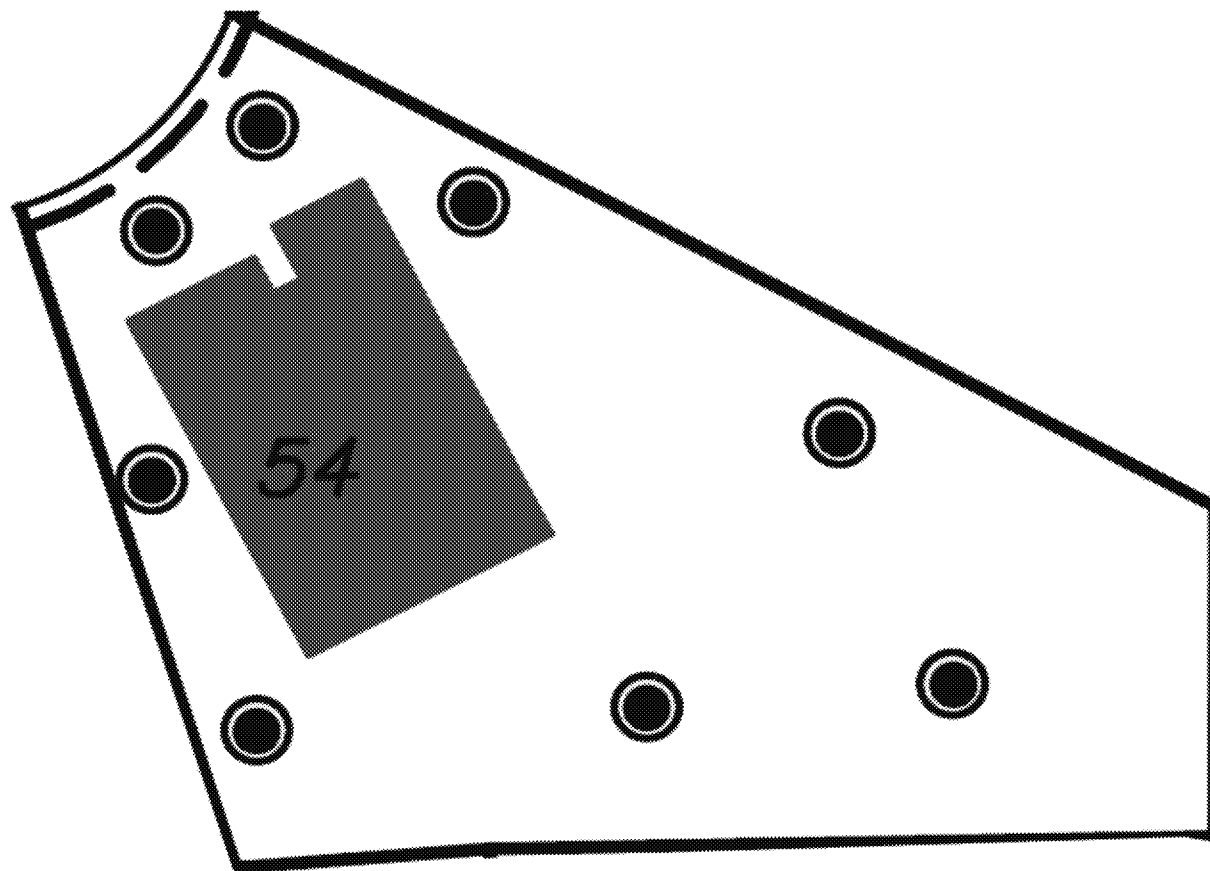


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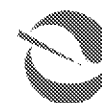


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# Confirmation Sampling of Large Lot



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# Phase 3 Cleanup – EPA Conclusions

Sampling results show “low level contamination with a few elevated areas.”

Fully expect that the data “will validate that the Site [Ag Park] is ready for residential development.”



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# Next Steps - Riverside Ag Park (on-site)

- AQMD recommendations on Air Monitoring Plan will be incorporated
- Public review ends March 21<sup>st</sup>
- Sampling scheduled to begin March 22
- Phase 3 cleanup scheduled to start in late March to early April
- AQMD will provide compliance oversight during cleanup



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# **OFF-SITE EVALUATION**

# Riverside Ag Park Off-site Evaluation

- Army Corps of Engineers developing Preliminary Assessment for former Camp Anza
- Collaborating with Water Board on their involvement with former Camp Anza and Rohr
- DTSC contacted CCAEJ to review materials – scheduled for March 15 and 21
- DTSC, EPA and Cal-EPA work group
- AQMD conducting air modeling
- Contacted health agencies to address community health concerns
- Establishing an off-site evaluation work group



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# Off-site Community Work Group

- 3 to 5 community liaisons based on a request for membership
- DTSC will facilitate, with EPA participation
- CCAEJ identified as an advocacy stakeholder
- City of Riverside, Army Corp of Engineers and elected officials will be engaged as stakeholders
- 6 month planned duration
- Monthly in-person meetings at a location in the neighborhood
- Re-assessment of goals will take place at the end of the 6 months, and extended if needed

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# **LESSONS LEARNED & FUTURE WORK**

# Lessons Learned & Future Work

- Review site characterization and sampling: consider use of multi-incremental sampling
- Review procedures for soil investigation and cleanup of PCB contamination
- Enhanced review of future incoming voluntary agreement requests
- Further evaluation of variability in EPA test methods



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# Questions?



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